December 2005 Update

Arsenic Trioxide Superfund Site
Richland, Ransom and Sargent Counties, North Dakota
(Review Date: 5/30/03)

Highlights Since the 2003 5-Year Review

- **North Dakota develops alternative analysis remedy design**
- **Lidgerwood modification enables treatment plant to achieve new arsenic standards**

Brief Site History: The site is located in southeastern North Dakota. It covers approximately 20 townships (approximately 568 square miles), encompassing portions of Richland, Ransom, and Sargent counties. The site area is sparsely populated and predominantly comprised of farmland with a few small cities including Lidgerwood, Wyndmere, and Milnor. During the 1930's and early 1940's, arsenic-laced bate was used extensively throughout North Dakota to combat grasshopper infestations. The bait, which included arsenic trioxide, sodium arsenate, Paris Green, and other arsenic compounds, was commonly applied to farm fields. Unused materials were often buried or dumped in pits or low-lying areas.

Routine water quality monitoring of municipal water supplies by the North Dakota State Department of Health (NDSDH) in 1979 identified elevated levels of arsenic at Lidgerwood. These levels exceeded the MCL of 0.05 mg/L designated by the EPA under the SDWA and were determined to be a health risk by the State and the EPA. The State ordered Lidgerwood to act appropriately to provide drinking water that met the MCL for arsenic, and in response, Lidgerwood constructed a new water treatment plant by 1986. The site was initially proposed for the National Priorities List (NPL) in 1981. Final listing of the site on the NPL occurred on September 8, 1983.

Cleanup Activities Completed: Construction completion for the site was achieved in 1993, and the site was deleted from the NPL in 1996. The following cleanup activities were completed:

- Expansion and modification of the Lidgerwood, Richland, and Wyndmere water treatment plants.
- Monitoring of the treatment plants, monitoring of the glacial aquifer systems, and monitoring of private wells.

Current Status: Each water treatment plant currently monitors water quality in accordance with an O&M plan developed by the NDSDH and approved by the EPA specifically for their plant. Responsibility for O&M of the Lidgerwood treatment plant was assumed by the city of Lidgerwood in February 1991. Responsibility for O&M of the Wyndmere treatment plant was assumed by the city of Wyndmere in March 1991. The Southeast Water Users assumed responsibility for O&M of the Richland rural treatment plant in July 1993. In addition, the NDSDH continually monitors drinking

water supply systems for compliance with SDWA MCLs. The Lidgerwood treatment plant operations have been modified to enable Lidgerwood to meet the new drinking water standard for arsenic.

EPA is working closely with the North Dakota Department of Health and the Southeast Rural Waters Users District to expand existing water treatment plant capacity. Options to provide water meeting the new standard are being evaluated for rural users.

The agencies are also working to develop appropriate institutional control for impacted groundwater.

Summary of Protectiveness: The remedy as designed, constructed, and operated may no longer be protective because the arsenic MCL has been lowered (effective February 2002; enforceable January 2006). In order to ensure that the remedy is effective, the EPA and the NDSDH should work together to complete the follow-up actions listed below and ensure that the improvements or modifications are made as necessary to provide residents living within the boundaries within the site with water that meets the new arsenic MCL.

Issues Impacting Protectiveness: Issues were noted during the 5-year review of the site. The following table summarizes the status of the follow-up actions addressing these issues.

Five-Year Review Update Table
(Review Date: 5/30/03)

Issues	Recommendations/ Follow-up	Follow-up Actions (Status/Due Date)	Status of Follow-up Actions 12/05	Responsible Party
1) Arsenic MCL has been revised from 50µg/L to 10µg/L	Identify and evaluate alternatives for improving or replacing Lidgerwood and/or Wyndmere treatment plants	January 2006	North Dakota has developed an alternative analysis remedy selection and design. Construction to begin in calendar year 2006.	EPA & North Dakota State Department of Health (NDSDH)
2) The new arsenic MCL may prompt additional affected residents to connect to the rural water system	Increase public awareness of new MCL and promote further public participation in the remedy	Completed. Affected residents estimated at 450 people	Completed. Affected residents estimated at 450 people	EPA & NDSDH

Issues	Recommendations/ Follow-up	Follow-up Actions (Status/Due Date)	Status of Follow-up Actions 12/05	Responsible Party
3) Lidgerwood treatment plant is currently not achieving the revised standard for arsenic	Address under issue 1 above	January 2006 Treatability Study results finalized 4/15/05.	Modifications to the plant made in the Treatability Study have enabled Lidgerwood to meet the new arsenic standard.	EPA & NDSDH
4) Wyndmere treatment plant may not achieve revised standards when operated at revised standards	Address under issue 1 above	January 2006	Southeast Rural Water Users District will provide water that meets the arsenic standard for this area.	EPA & NDSDH
5) Due to new MCL, communities within site may require an action to achieve new standard	Investigate water quality of potentially affected communities and rural residents	Completed.	Completed.	EPA & NDSDH
6) Background concentration estimated in remedial investigation is greater than revised arsenic standard	Re-evaluate background concentration in groundwater	Completed.	Completed.	EPA & NDSDH